ROBINAIR

Service Manual

25200B/25201B/25202B

Refrigerant Recovery unit

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Theory of Operation and Safety Precautions

The 25200B is a recovery unit designed for use on commercial systems using medium and high pressure refrigerants. This unit use an oil-less compressor with a push/pull design to safely and quickly recover either liquid or vapor. This unit also has a self-clear feature which makes changing refrigerants easier.

Depressurizing Unit

Note: Pressure may be present in the block after this process is complete so remove all lines and solenoids with caution.

1. Verify the valves on the unit and the hoses are closed and not connected to a system or tank.
2. Take a hand-held manifold set and check to make sure the high and low side valves are shut. Then connect the center port to the intake of a seperate recovery unit.
3. Connect the free end of the blue system vapor hose to the high side fitting on the hand-held manifold set.
4. Connect the free end of the system liquid hose to the low side fitting on the hand-held manifold set.
5. Open valves on the hoses, system and the manifold.
6. Recover all the refrigerant that is on this side of the unit. When your recovery unit shuts off, let it set for 5 minutes. If the pressure raises restart your unit. Continue this process unitll there is not a pressure rise on your gauges.
7. Close the high and low side valves on your manifold set. Disconnect both of the units hoses from the manifold.
8. Connect the free end of the tank vapor hose to the high side fitting on your manifold set.
9. Connect the free end of the tank liquid hose to the low side fitting on your manifold set.
10. Open the valve on the hoses and manifold set.
11. Turn the valve on the control panel to the recover position.
12. Start your recovery unit to recover any refrigerant that may be present. When your recovery unit shuts off, allow it to set for 5 minutes if the pressure raises restart your unit. Continue this process until there is not any pressure rise on your gauges.
13. Turn the valve on the control panel to the self-clear position.
14. Start your recovery unit to recover any refrigerant that may be present. When your recovery unit shuts off, allow it to set for 5 minutes if the pressure raises restart your unit. Continue this process until there is not any pressure rise on your gauges.

WARNING

Always wear safety goggles when working with refrigerants. Contact with refrigerant can cause eye injury. Disconnect lines and hoses with extreme caution! Pressurized refrigerant may be present in lines and hoses. Always point lines and hoses away from you and anyone nearby.

Always unplug the station from the power source before removing any of the shrouding or beginning any service work.

To order parts, please FAX your order to 1-800-222-7805.

Component Descriptions

110-volt/220-volt

1. **RA17106/RA19349 High Pressure light (red)**- Indicates when the discharge pressure has reached greater than 435-psi.

2. **RA1917107/RA19351 Liquid Recovery Light (amber)**- Indicates when the unit is operating in the vapor recovery mode.

3. **RA17107/RA19351 Vapor Recovery Light (amber)**- Indicates when the unit is operating in the vapor recovery mode.

4. ****RA19670 Recovery/Self-Clear Switch**- Determines whether the unit is operating in the recovery or self-clear mode.

5. **19666 Compound Gauge (Low Pressure)**- Indicates the pressure of the system being recovered.

6. **19667 Pressure Gauge (High Pressure)**- Indicates the recovery tank pressures.

7. **19686 Solenoid Manifold Block Assembly**- This is where all the solenoids, manual valves and fittings are contained.

   All solenoids can be rebuilt using the **RA19258** rebuild kit.

   7-1 Solenoid #1- This solenoid is activated only during the vapor recovery process.

   7-2 Solenoid #2- This solenoid is activated only during the vapor recovery process.

   7-3 Solenoid #3- This solenoid is activated only during the vapor recovery.

   7-4 Solenoid #4- This solenoid is activated only during the vapor recovery process.

   7-5 Solenoid #5- This solenoid is activated during the liquid and self-clear process.

   7-6 RA19427 High Pressure Cut Out- Causes the unit to shut off, when the pressure on the discharge side of the compressor, reaches 435-psi .

   7-7 RA19288 Liquid Check Valve- Stops liquid in the tank from flowing back into the system that is being recovered.

   7-8 Expansion Valve- Controls the flow of refrigerant going to the compressor.

8. **19664 Valve Replacement Parts**- Used to rebuild the valve that allows the operator to switch from recover to self-clear.

9. **RA19416/RA17516 Fan**- Cools the head of the compressor and removes heat from the condenser.

10. **19685 Float Chamber**- Detects liquid refrigerant during recovery. When the float in the chamber raises it sends current to the relay board to have the unit switch from vapor to liquid recovery.

11. **19651 D/C Rectified Rebuild Kit**- Used to rebuild only the D/C rectified oil-less compressor.

12. **19652/19666 D/C Rectified Compressor**- Moves the refrigerant from system to the recovery tank.

13. **19662 Relay Board**- Control the functions of this unit the rectifier and relays are mounted on this board. **(THIS BOARD HAS TO BE CHANGED AS A UNIT A PART CAN NOT BE INDIVIDUALLY CHANGED)**

14. **19669 Case Front**- Molded plastic front cover.

15. **19663 Case Bottom**- Molded plastic base.

16. **19665 Case Back**- Molded plastic back cover.

17. **RA19133 Tank Float Relay**- Relay that shut the unit off when the recovery tank becomes full (25202 Models).

18. **122185 (10-amp)/122602 (7-amp) Circuit Breaker**

Miscellaneous

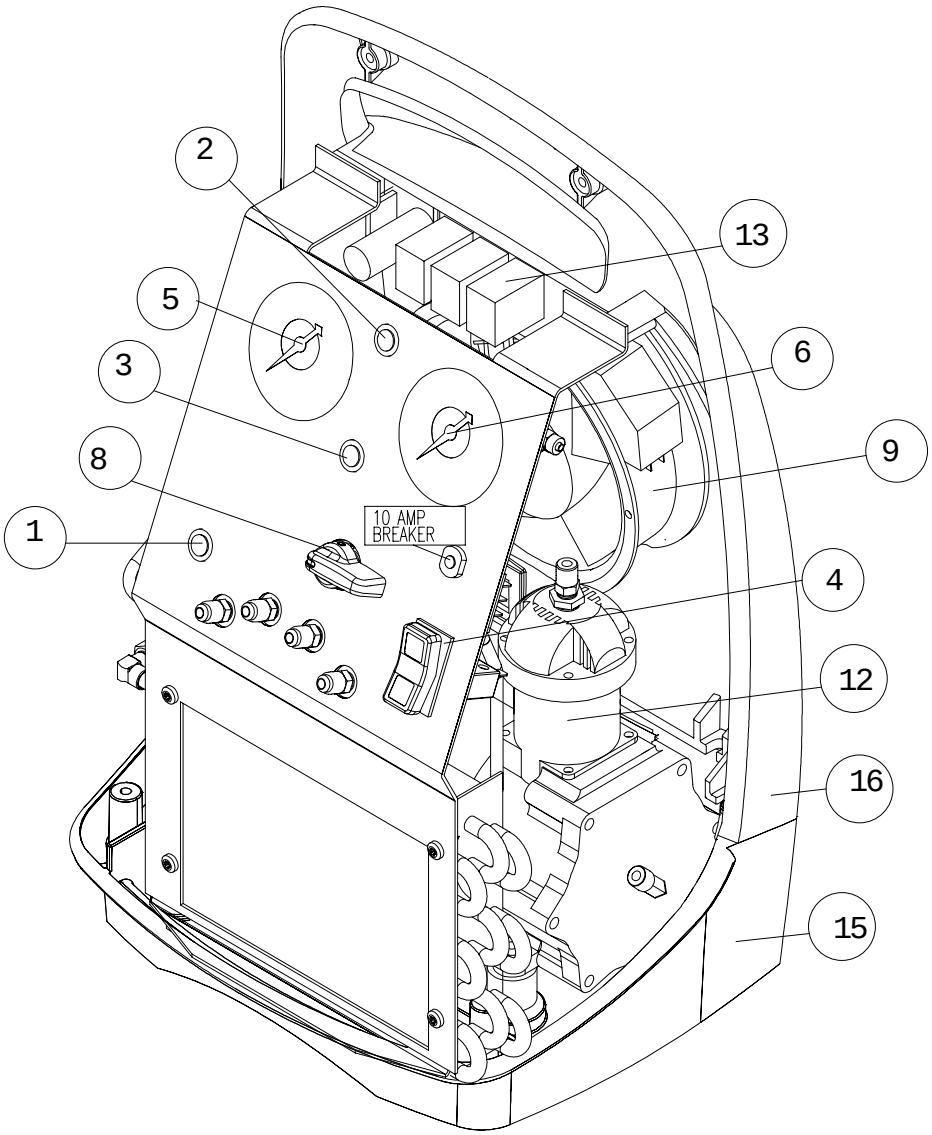
RA19491/RA19492 Replacement Coils

19497 Replacement Float Cable

**** On 25201B the 3 position switch was changed converted over to 2 switches**

RA19343 I/O Main Power Switch
117684 Double Pole/Double Through Switch

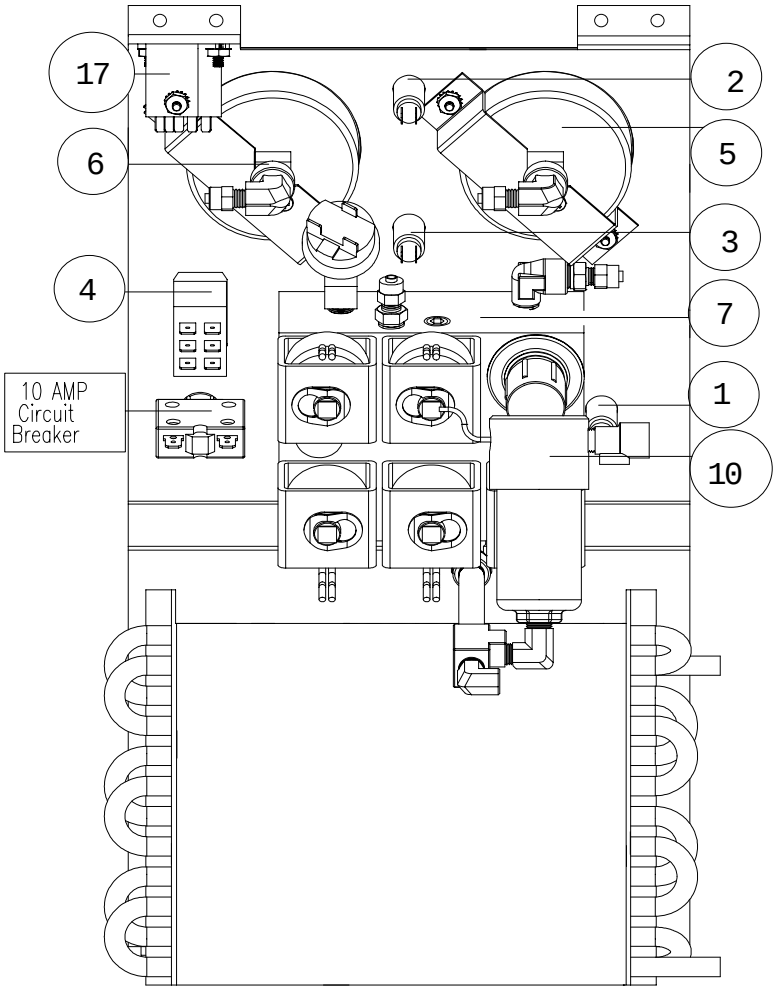
Component Locations



INST0731

Control Panel
(Back View)

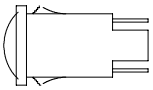
Note: #17 for 25202B only



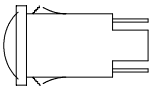
INST0732

Component Descriptions

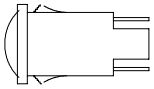
1 HIGH PRESSURE LIGHT (RED)



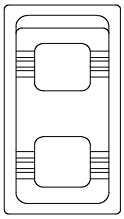
2 LIQUID RECOVERY LIGHT (AMBER)



3 VAPOR RECOVERY LIGHT (AMBER)



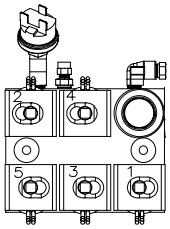
4 RECOVERY SELF-CLEAR SWITCH



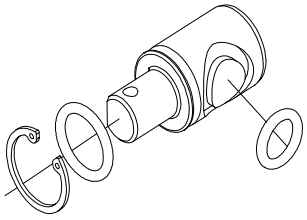
5 SYSTEM PRESSURE

6 TANK PRESSURE

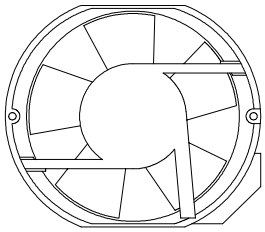
7 SOLENOID MANIFOLD BLOCK ASSEMBLY



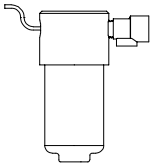
8 BALL VALVE REBUITLD KIT



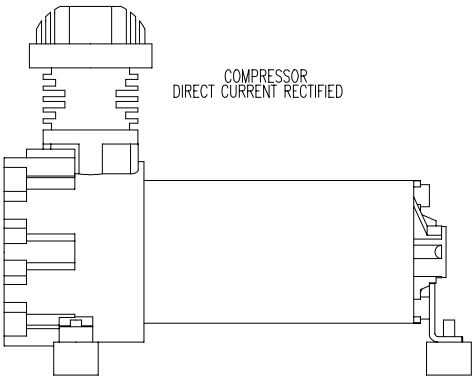
9 FAN



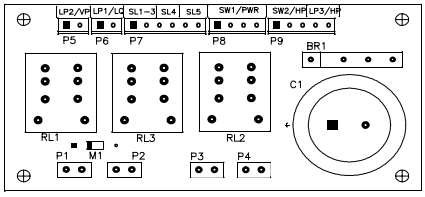
10 FLOAT ASS'Y



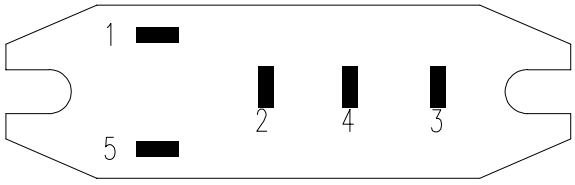
11 COMPRESSOR DIRECT CURRENT RECTIFIED



13 RELAY BOARD

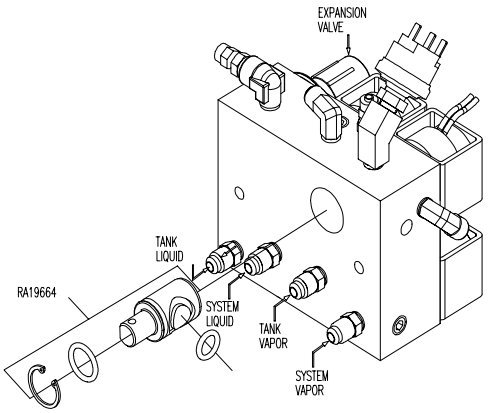


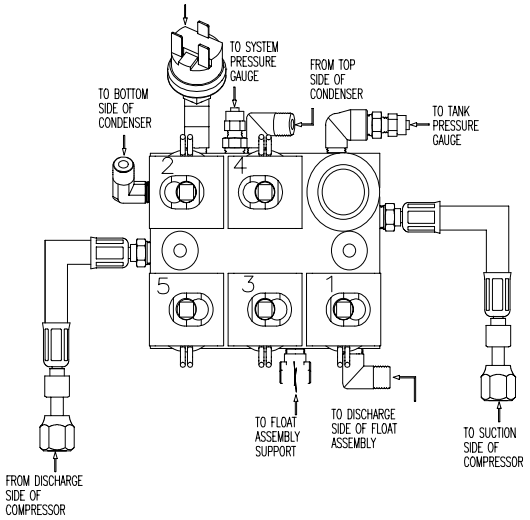
17 FLOAT RELAY

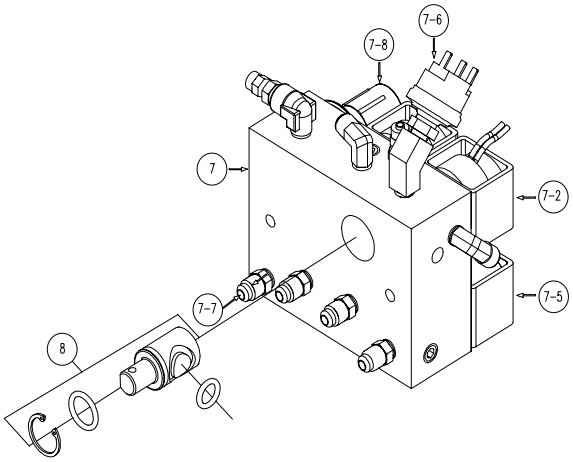


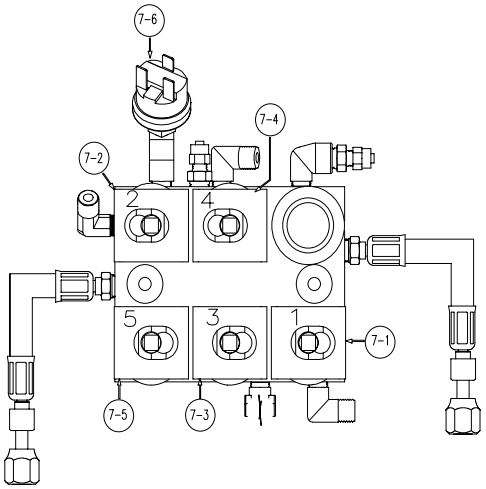
INST0730

Manifold Block





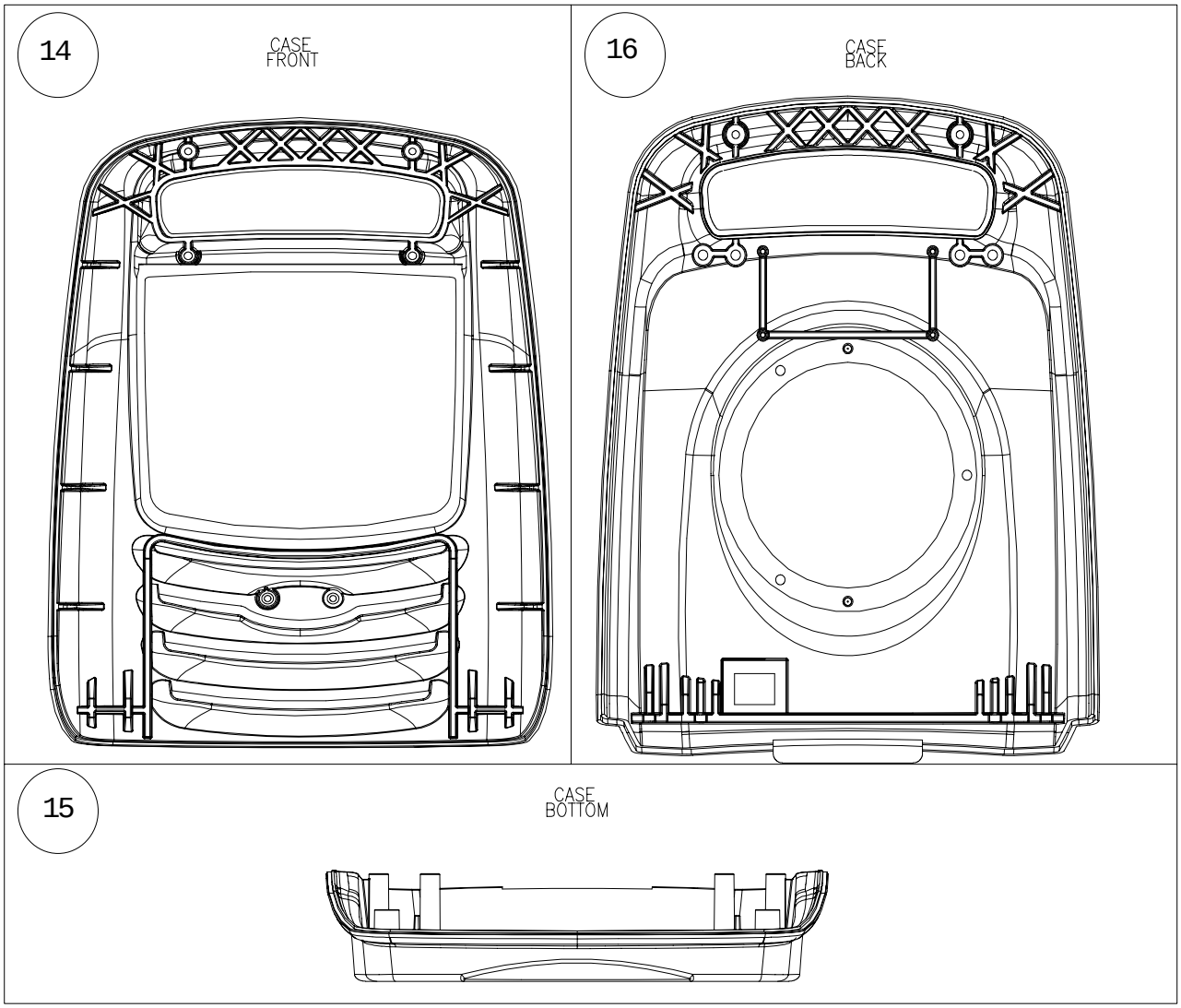




7. RA19686 Solenoid Manifold Block Assembly
7-1 RA19258 Solenoid #1
7-2 RA19258 Solenoid #2
7-3 RA19258 Solenoid #3
7-4 RA19258 Solenoid #4
7-5 RA19258 Solenoid #5
7-6 RA19427 High Pressure Cut Out
7-7 RA19288 Liquid Check Valve
7-8 Expansion valve

INST0738

Replacement Case



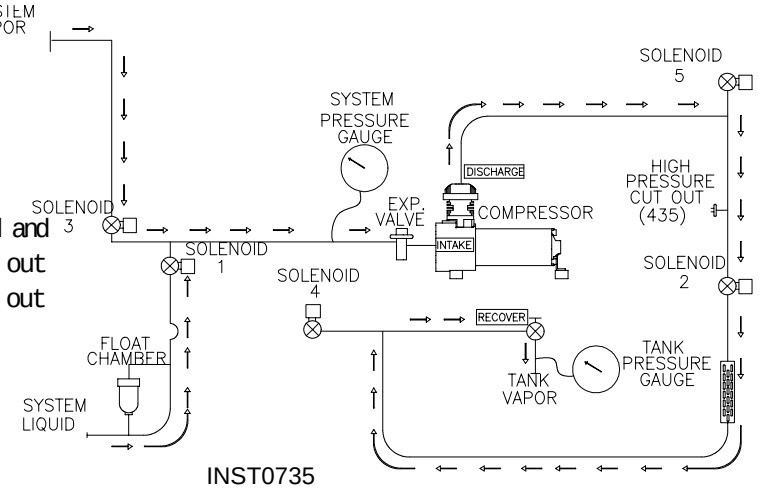
INST0733

Operational Flow Diagram

Vapor Recovery

Solenoids 1, 2 & 3 are energized.

Refrigerant is pulled out of the system liquid and vapor ports by the compressor.Then discharged out through solenoid #2 through the condenser and out the discharge valve.

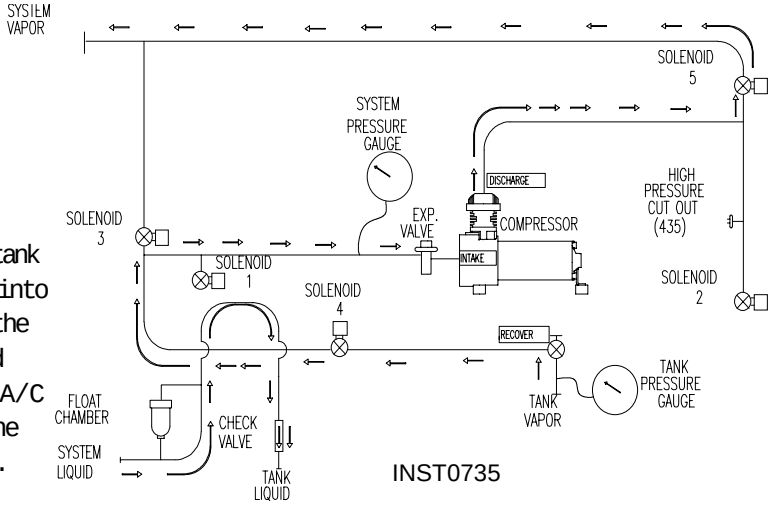


INST0735

Liquid Recovery

Solenoid 4 & 5 are energized.

Vapor refrigerant is pulled out of the tank vapor port by the compressor then discharged into the vapor port of the system. The pressure in the A/C unit is then raised which causes the liquid refrigerant be forced out the liquid port of the A/C system , through the float chamber then out the tank discharge hose into the tank liquid valve.

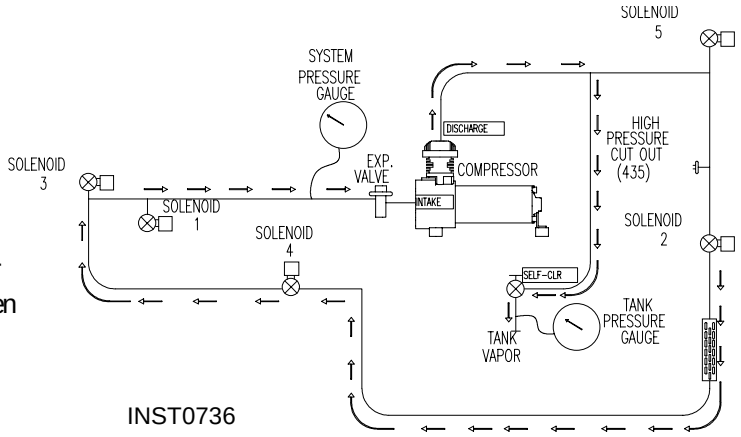


INST0735

Self-Clear

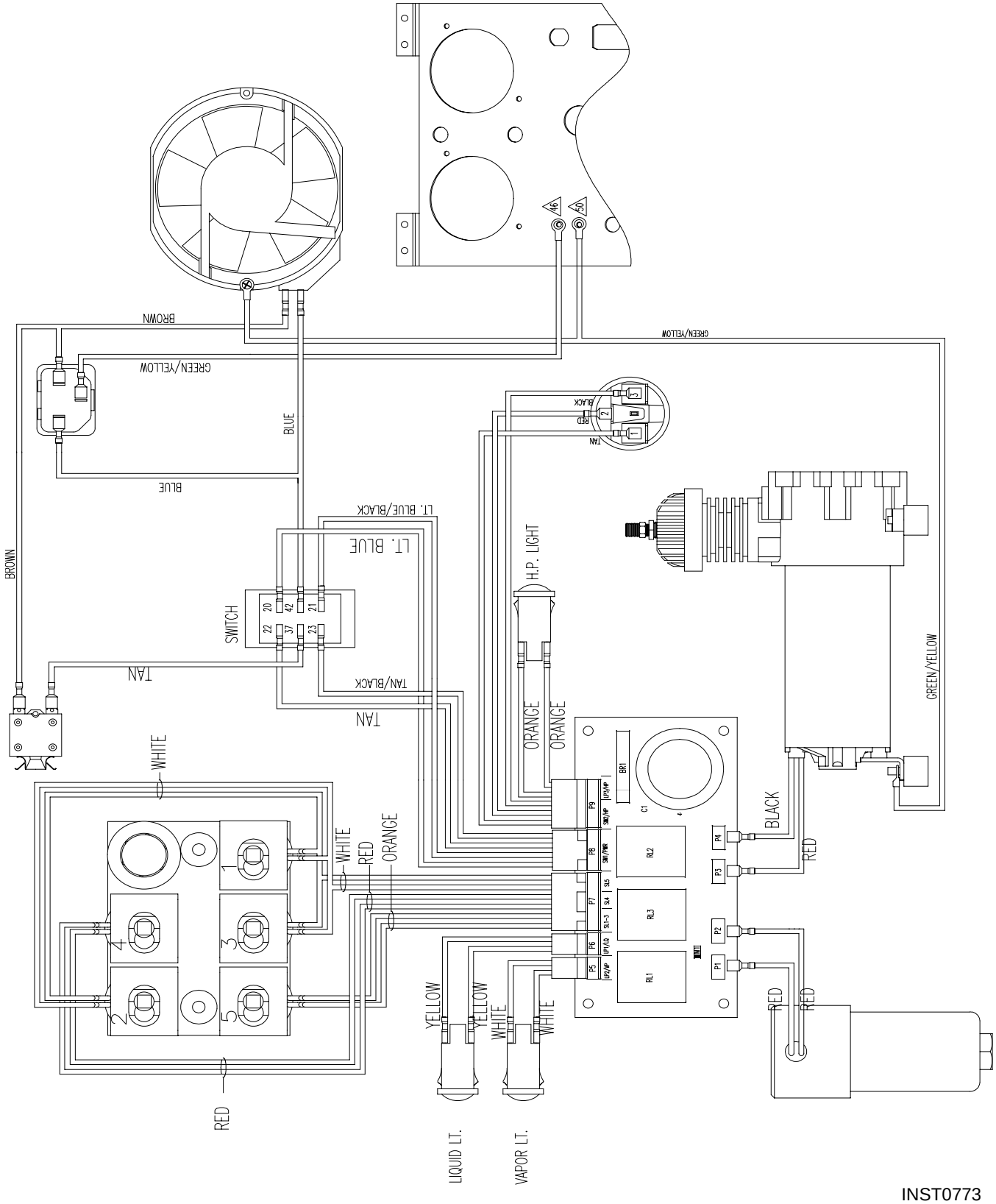
Solenoid 4 is energized.

Refrigerant is pulled out of the condenser through the low side when solenoid #4 opens, then discharged out the tank vapor hose to the tank vapor valve.



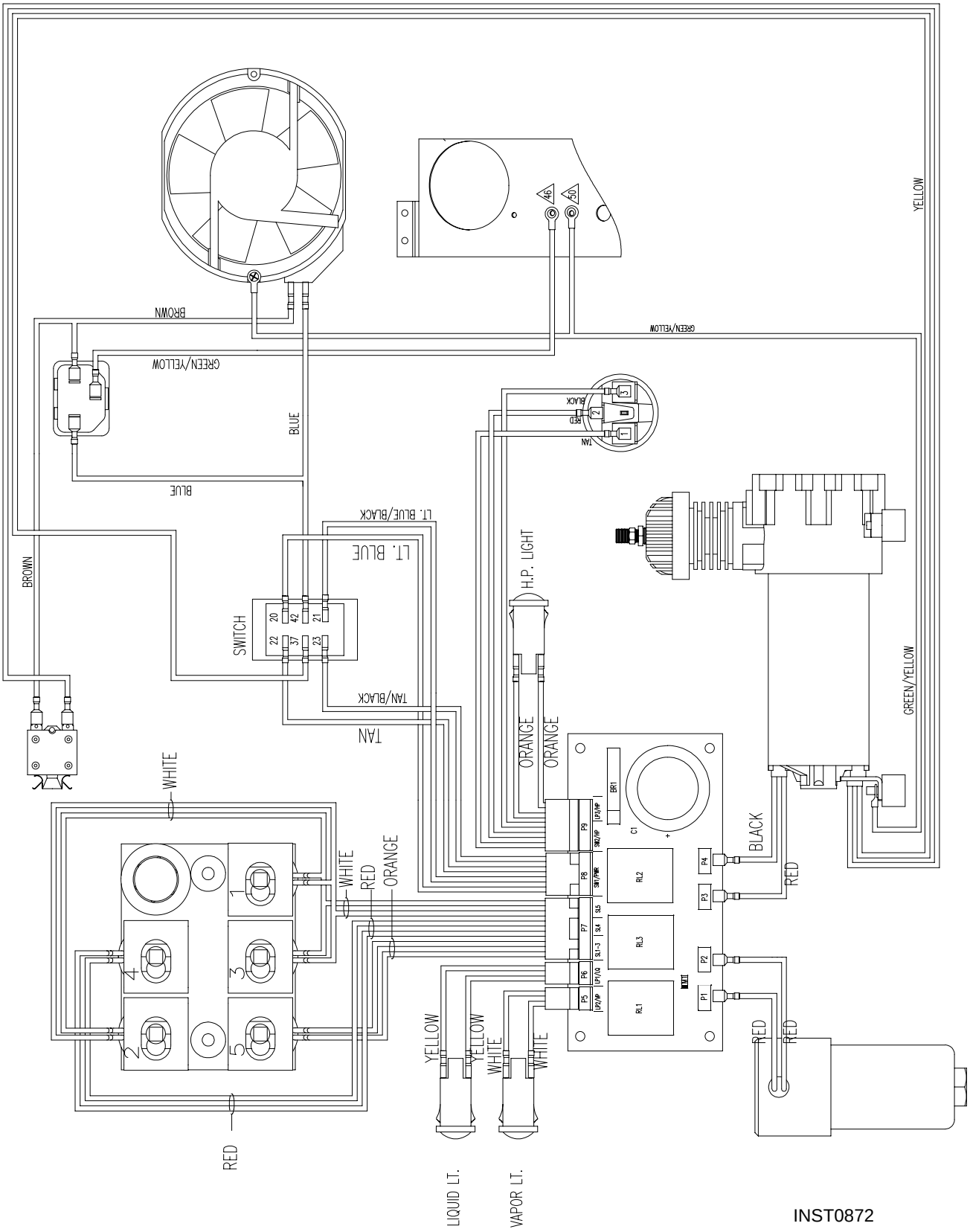
INST0736

Wiring Diagram
(With Out Thermal Protection)
25200b

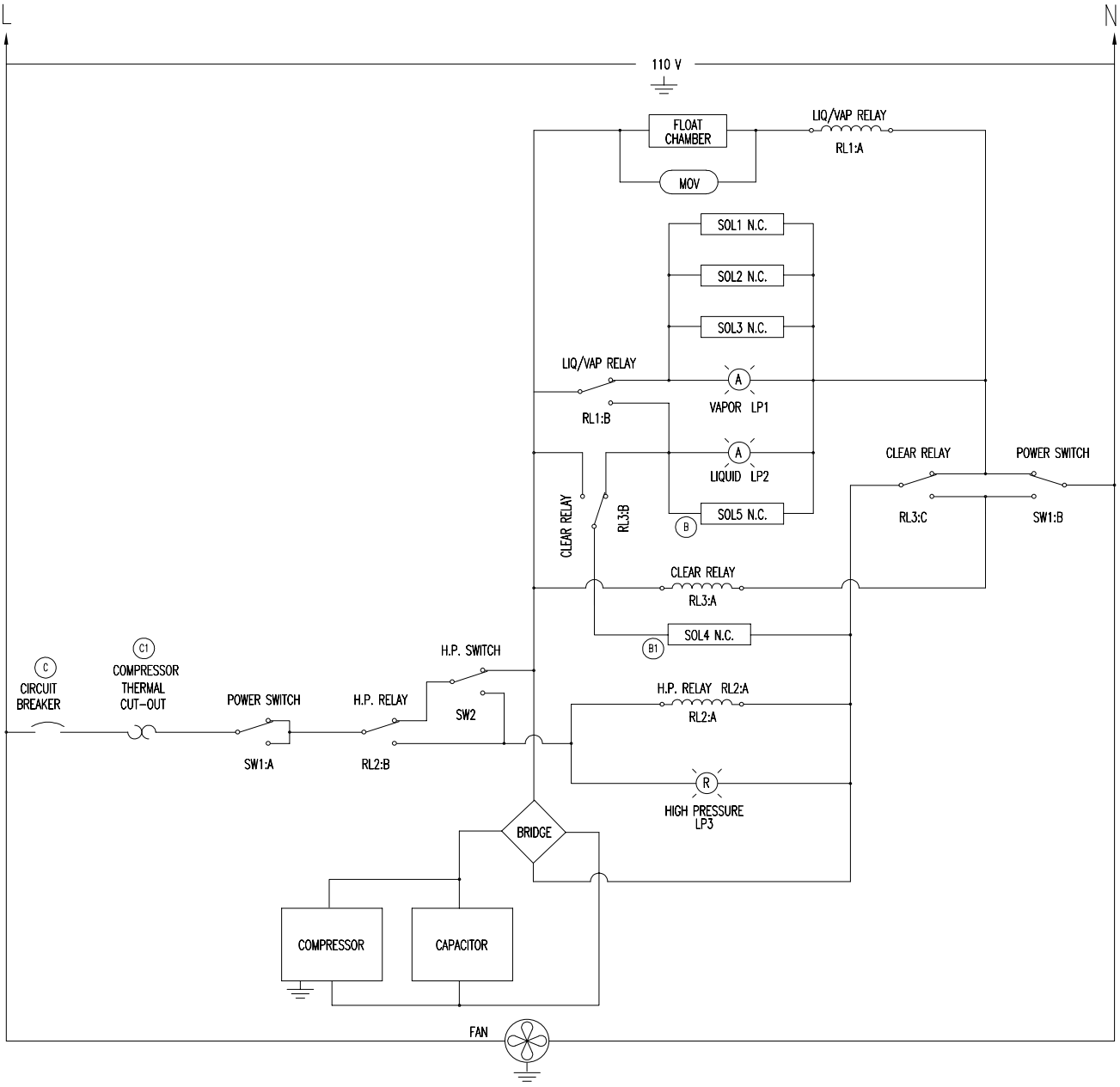


INST0773

Wiring Diagram
(With Thermal Protection)
25200B

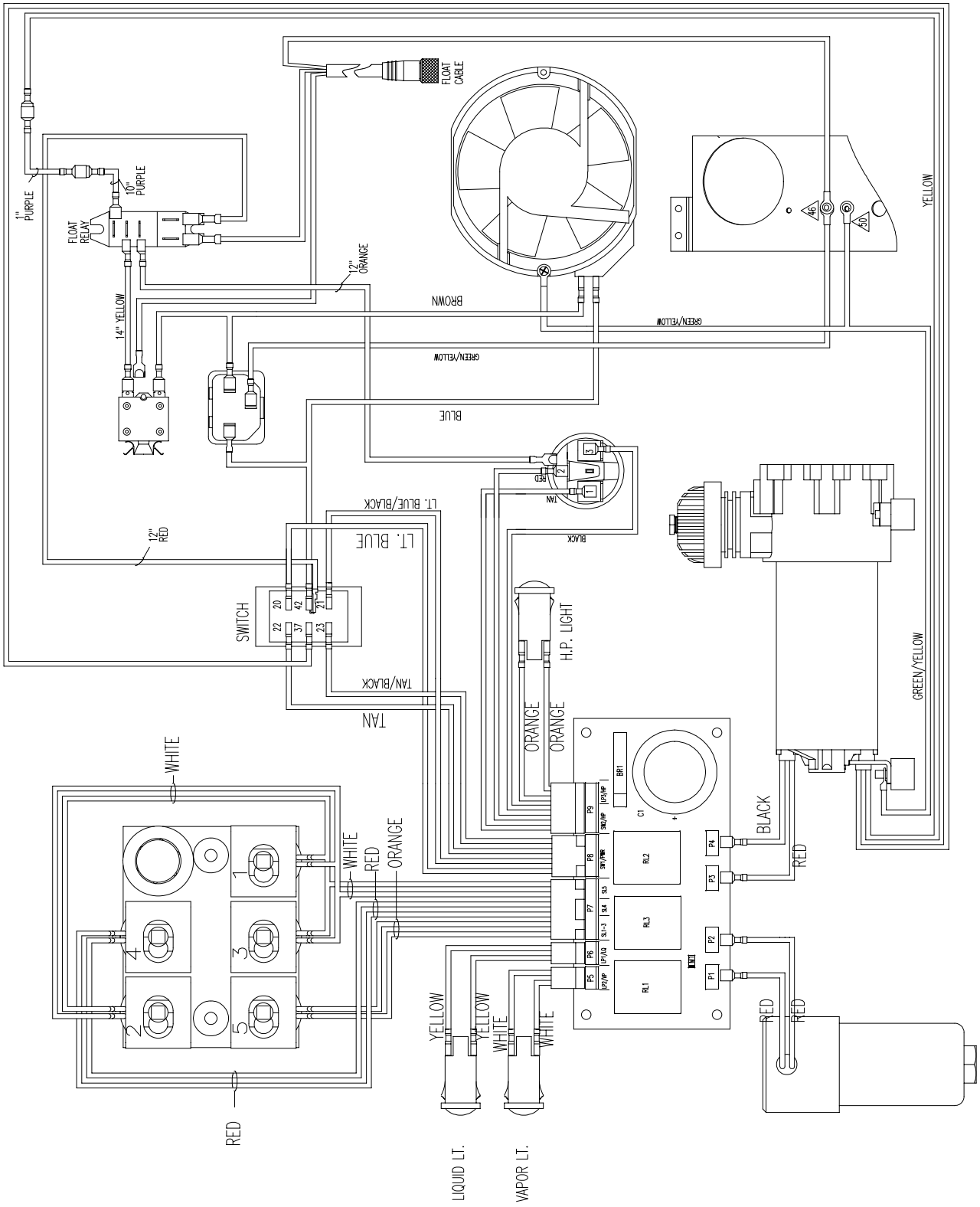


Wiring Schematic
25200B



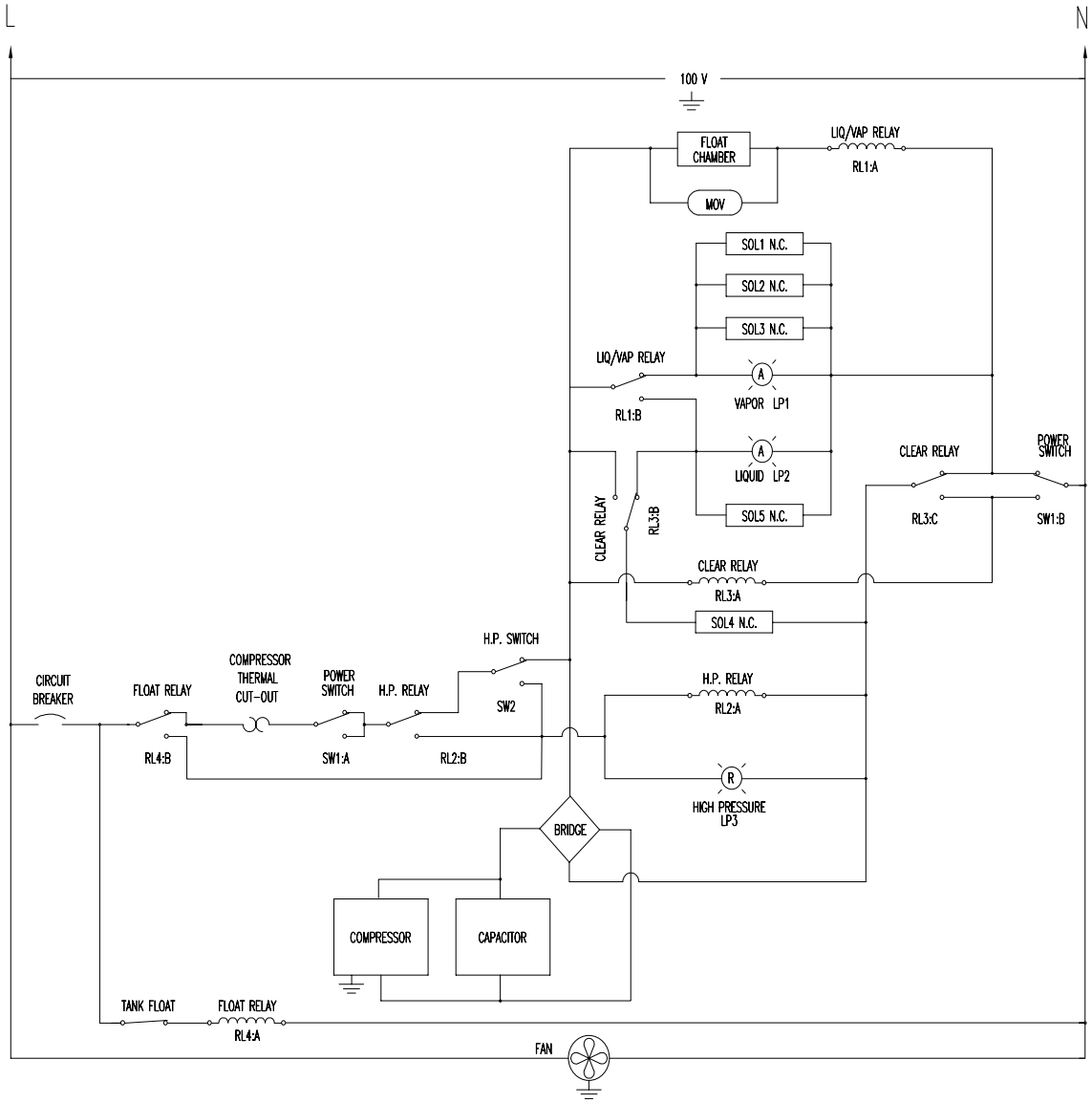
INST0721

Wiring Diagram
25202B



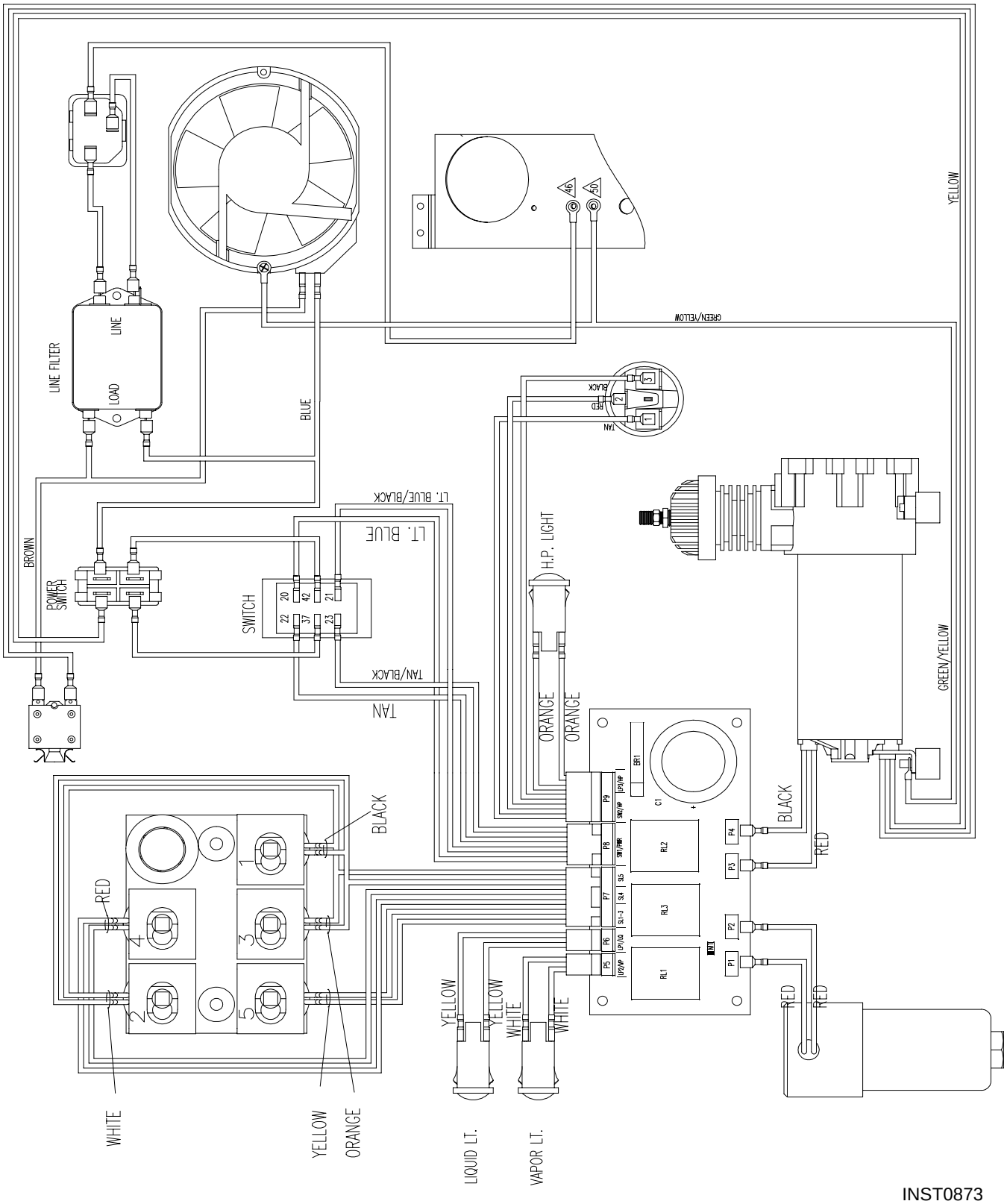
INST0874

Wiring Schematic
25202B



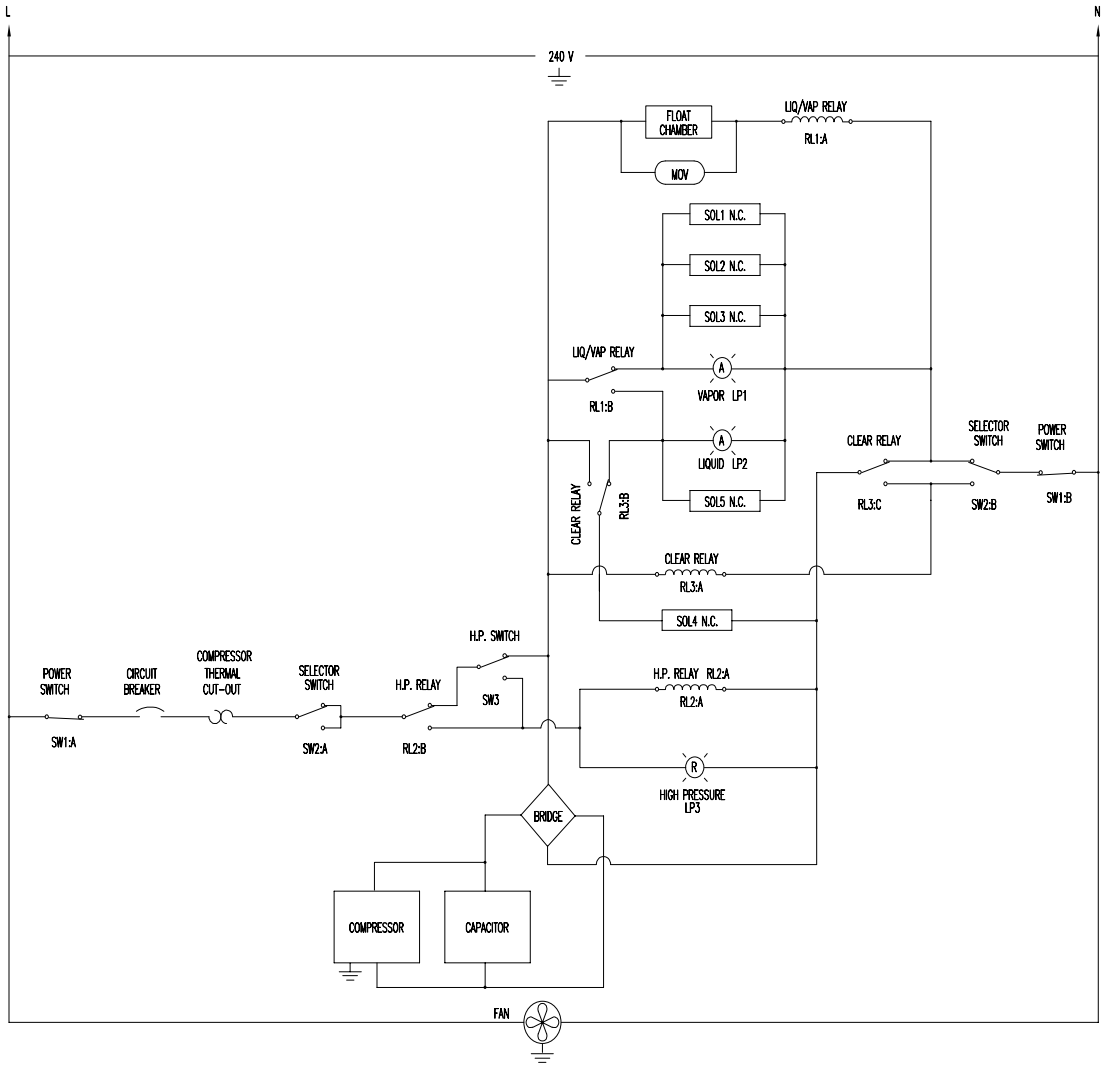
INST0807

Wiring Diagram
25201B



INST0873

Wiring Schematic
25201B



Troubleshooting

COMPRESSOR DOES NOT RUN/
COMPRESSOR LIGHT ON

1. Verify that the ball valve is in the recover position.
2. Remove the front cover and check for loose wires.
3. Check voltage at the compressor.
4. If voltage is present replace compressor.

COMPRESSOR DOES NOT RUN
HIGH PRESSURE LIGHT ON

1. Verify that all hoses are connected.
2. Verify that all ball valves on hoses are open.
3. Verify that the valve on the control panel is in the same position as the power switch.
4. Verify that the wires are connected to high pressure switch correctly.
5. If unit is operating in liquid recovery mode, verify solenoid #5 is receiving power and opening.
6. If unit is operating in vapor recovery mode, verify solenoid #2 is receiving power and opening.
7. If all of these are OK, then check the tank for pressure by connecting a gauge to the air purge port on the recovery tank. If pressure is over 300-psi, the excess air will need to be purged.
8. If the tank checks OK, then make sure that all the refrigerant is removed from the unit, then check the high pressure switch for continuity between terminals #1 & #3. If continuity is not present replace switch**.**

COMPRESSOR RUNS/VAPOR LIGHT ON
WILL NOT RECOVER

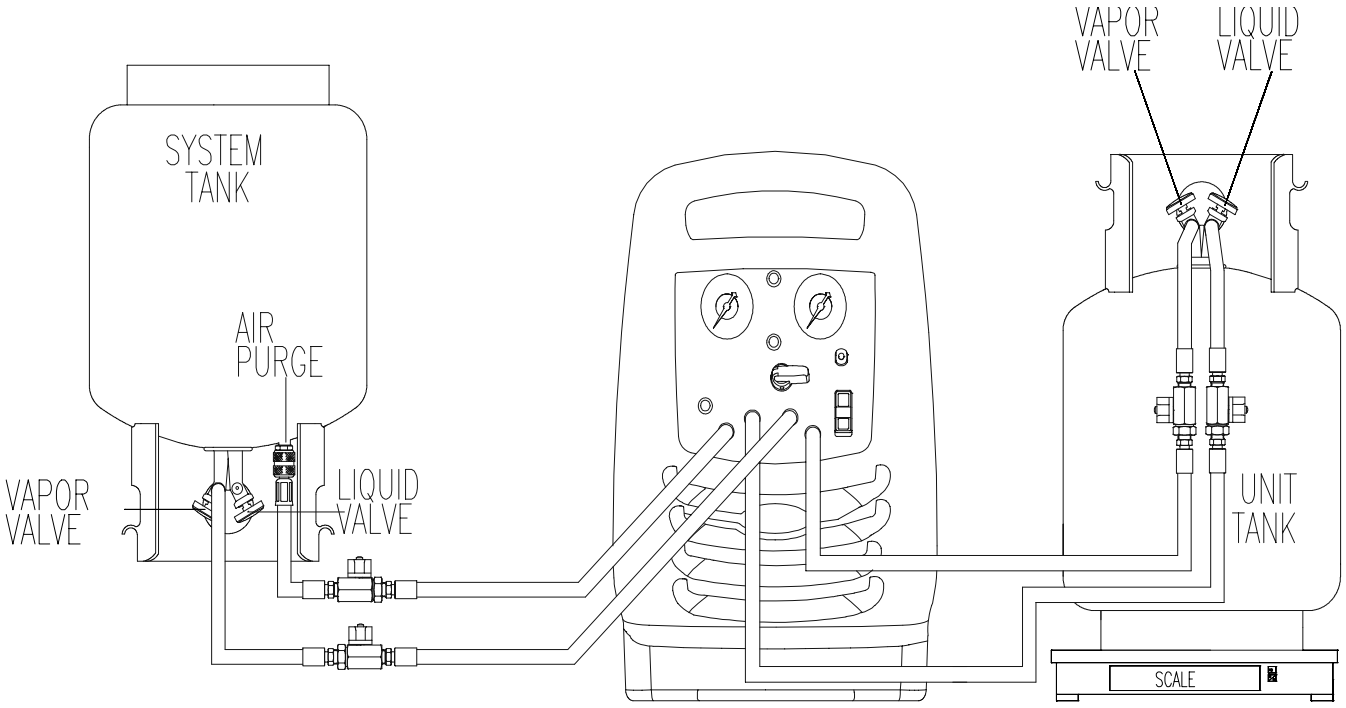
1. Verify the valve and main power switch are in the recover position.
2. Verify solenoids #1 & #3 are receiving power and opening.
3. Verify flow to the inlet (suction) side of the compressor.
4 Verify flow from the discharge (pressure) side of the compressor.
5. Verify that solenoid #2 is receiving power and opening.
6. Verify that solenoid #4 in NOT receiving power and that flow is NOT getting past. If you suspect that this is happening rebuild this solenoid.
7. Verify that solenoid #5 in NOT receiving power and that flow is NOT getting past. If you suspect that this is happening rebuild this solenoid.
8. If all the following checks are OK, then check the compressor for suction and discharge pressures.

COMPRESSOR RUNS
SYSTEM GAUGE WILL NOT PULL DOWN
SELF-CLEAR

1. Verify the valve and main power switch are in the self-clear position.
2. Verify that solenoid #4 is receiving power and open.
3. Verify that there is flow to the intake (suction) side of the compressor.
4. Verify that there is flow to the discharge (pressure) side of the compressor.
5. Verify that solenoids #1, #3, #5 & #2 are NOT receiving power and that flow is NOT getting past. If you suspect that this is happening to any of these solenoids rebuild that solenoid.
6. If all the following checks are OK, then check the compressor for suction and discharge pressures.

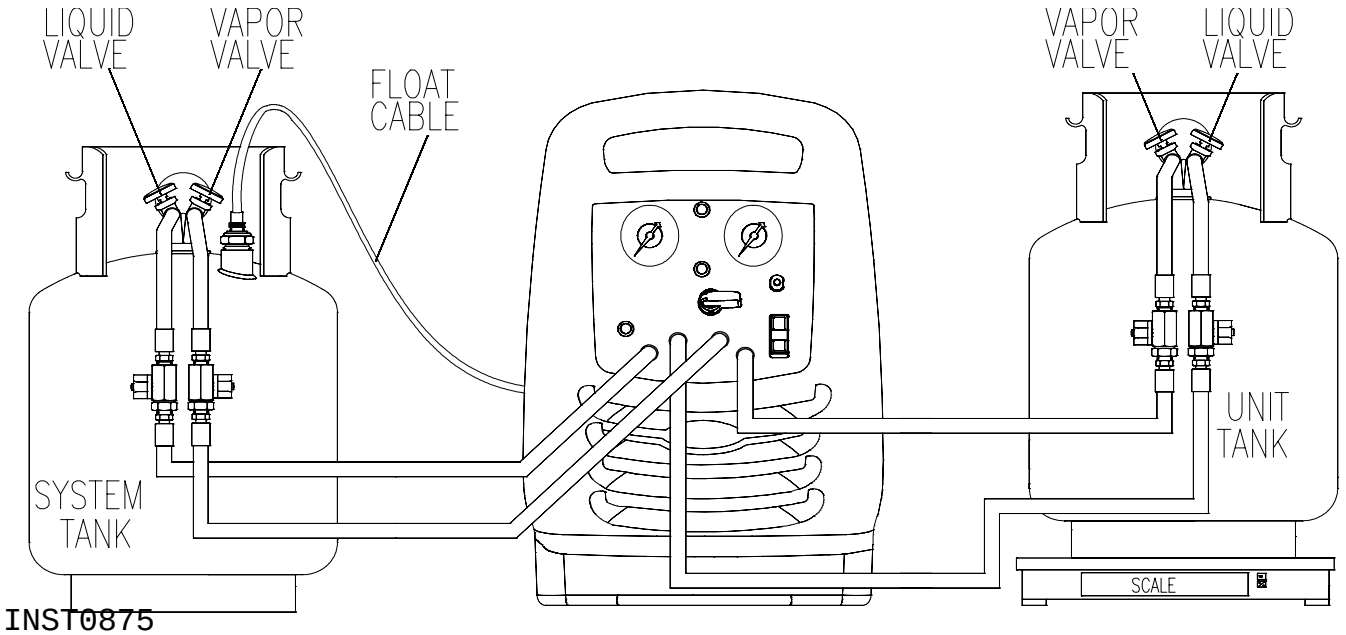
Function Test Connections

25200B with out float cable



INST0739

25200B/25202B with float cable



INST0875

Function Test & Labor Rates

1. Remove the cover so you can perform a leak test during the different recovery processes.

2. Take an empty recovery tank and connect the tank liquid hose from the unit to the liquid port this tank. Then connect the tank vapor hose from the unit to the vapor port on the tank (see page 18). Then place this tank on a scale so you can measure the refrigerant being transferred (This tank will be call the unit tank).

3. Take a recovery tank with no less then 10 lbs (4.5 kg) of liquid and connect the system liquid hose to the air purge port of this tank. Then connect the system vapor hose to the vapor port of this tank (This tank will be called the system tank). **Note: On units with a float cable the liquid hose will need to be connected to the tank liquid valve, also the tank being used will need to have a float switch in it and connected to the unit.**

4. Open all valves on tanks and hoses and turn the control panel valve to the recovery position.

5. Turn the system tank upside down (do not do this if you tank has a float cable connected to the tank).

6. Turn the main power switch to the recover position. The liquid light and the main power switch should illuminate (not on the 25201B) and the compressor will start (The system pressure gauge should show the pressure in the source tank).

7. Allow the unit to run for two minutes, then check the scale. There should be a gain in the unit tank.

8. Turn the source tank right side up. The liquid light should go out and the vapor light should illuminate.

9. Allow the unit to run for two minutes. You should notice a small amount of weight gain in the tank on the scales.

10. Shut the system tank and hose valves off and remove the system liquid line form the air purge port The system pressure gauge should pull down into a vacuum.

11. When the system pressure gauge reaches a vacuum turn the main power switch to the off position. The system pressure gauge should hold a vacuum.

12. Open the system liquid valves and turn the main power switch to the recover position.

13. Close the vapor valve on the unit tank. The tank pressure gauge should build to 435 psi (30 bar), the high pressure switch should activate causing the high pressure light to come on and the compressor to shut off. **Note: The source tank must have refrigerant in it to build pressure.**

14. Turn the main power switch off.

15. Slowly open the tank vapor valve to relive the excess pressure into the tank.

16. Turn the control panel valve to the self-clear position.

17. Turn the main power switch to self-clear. The light on the switch should illuminate (25200B only), the compressor will start and the system pressure gauge will pull into a vacuum.

18. Once a vacuum is reached, turn the main power switch to off. Disconnect the unit form the tanks unit is now completed.

LABOR RATES

Robinair authorizes One (1) hour to troubleshoot leak test and complete a full function test on units that are covered under factory warranty. The authorized time for part replacement is 15 minutes per part. If the estimated time is more than 2 hours prior authorization from a Robinair technician is required.

EXCEPTIONS TO THE 15 MINUTE TIME:

To rebuild solenoid #1, 30 minutes will be allowed.